



**Ewbank**  
and associates

GEO SYSTEMS PROFESSIONALS

Thermal Conductivity Test  
Rhea County High School  
Evansville, Tennessee

Earth Energy Engineering



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**Thermal Conductivity Test Results  
Rhea County High School  
Evansville, Tennessee**

Earth Energy Engineering performed a thermal conductivity test at the Rhea County High School in Evansville, Tennessee on August 31, 1999. Testing was done by Bill Nagle with a Ewbank portable test unit.

The test borehole was 300 feet in depth and 6" in diameter. A 1" inch loop was installed and the borehole was backfilled with #9 stone. Static water level was reported at 40 feet. The formations encountered were primarily limestone and shale.

The thermal conductivity (k) value for this borehole is **1.3 btu/degree F-hr-foot**. This is an average conductivity per foot for the borehole. This value represents the rate at which the borehole and rock will transfer heat.

To accurately measure the thermal conductivity of the formation a borehole should be drilled and grouted with a bentonite grout to prevent any flow of water through the borehole.

All test equipment, methods, procedures, calculations, and interpretation is done in accordance with the recommendations and guidelines of the International Ground Source Heat Pump Association.

# Earth Energy Engineering, Inc.

## Drill Log Rhea County High School Evansville, Tennessee

### Test Hole No. 1 Parking Lot Near Greenhouse

Set casing three times @ 31 ft., 43 ft., & 90 ft.

Static Water Level – 40 ft.

Tremie pumped 150 gal. of cement grout to 90 ft. level.

Backfilled hole with #8 gravel and hole plug.

0 - 28 ft.	Surface clay, silt and small stone
28 - 39 ft.	Limestone with thin shale bands
39 - 40 ft.	Void – muddy shale
40 - 84 ft.	Limestone
84 - 87 ft.	Small voids – shale bands – 150 gpm.
87 - 95 ft.	Limestone with shale bands
95 – 300 ft.	Limestone

Drilled	August 5&6, 1999
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Thermal Cond. Test	August 24, 1999
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Driller	Miller Drilling Co.	Hayesville, NC.
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